SAMSUNG

# User manual

## S19C301F
## S20C301FL
## S22C301F

The color and the appearance may differ depending on the product, and the specifications are subject to change without prior notice to improve the performance.

BN46-00311F-00

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# Copyright

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- An administration fee may be charged if either
  - (a) an engineer is called out at your request and there is no defect in the product.
    (i.e. where you have failed to read this user manual)
  - (b) you bring the unit to a repair center and there is no defect in the product.
    (i.e. where you have failed to read this user manual)
- The amount of such administration charge will be advised to you before any work or home visit is carried out.

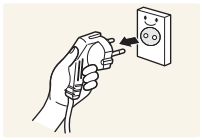
## Icons used in this manual

| | |
|---|---|
| | The following images are for reference only. Real-life situations may differ from what is shown in the images. |

## Cleaning

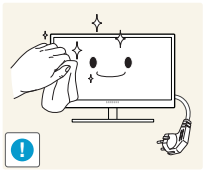
Exercise care when cleaning as the panel and exterior of advanced LCDs are easily scratched.

Take the following steps when cleaning.



1. Power off the monitor and computer.
2. Disconnect the power cord from the monitor.

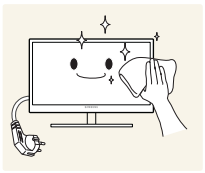
Hold the power cable by the plug and do not touch the cable with wet hands. Otherwise, an electric shock may result.



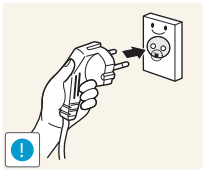
3. Wipe the monitor with a clean, soft and dry cloth.

- Do not apply a cleaning agent that contains alcohol, solvent, or surfactant to the monitor.

- Do not spray water or detergent directly on the product.



4. Wet a soft and dry cloth in water and wring thoroughly to clean the exterior of the monitor.

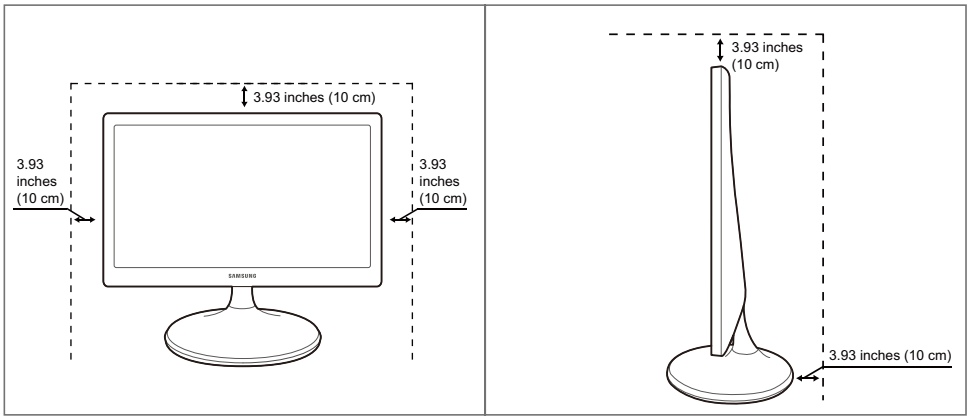


5. Connect the power cord to the product after cleaning the product.
6. Power on the monitor and computer.

## Securing the Installation Space

Ensure some space around the product for ventilation. An internal temperature rise may cause fire and damage the product. Be sure to allow the amount of space as shown below or greater when installing the product.

The exterior may differ depending on the product.




## Precautions for storage

Be sure to contact Samsung Customer Service Center (page 83) if the inside of the monitor needs cleaning. (Service fee will be charged.)

# Safety Precautions

| Caution |
| --- |
| RISK OF ELECTRIC SHOCK DO NOT OPEN |
| Caution: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER ALL SERVICING TO QUALIFIED PERSONNEL. |

| | |
| --- | --- |
| | This symbol indicates that high voltage is present inside. It is dangerous to make any kind of contact with any internal part of this product. |
| | This symbol alerts you that important literature concerning operation and maintenance has been included with this product. |

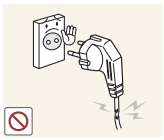
## Symbols for safety precautions

| | |
| --- | --- |
| Warning | A serious or fatal injury may result if instructions are not followed. |
| Caution | Personal injury or damage to properties may result if instructions are not followed. |
| | Activities marked by this symbol are prohibited. |
| | Instructions marked by this symbol must be followed. |

## Electricity and Safety

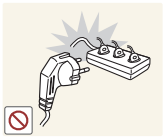
The following images are for reference only. Real-life situations may differ from what is shown in the images.

### Warning



Do not use a damaged power cord or plug, or a loose power socket.

- An electric shock or fire may result.

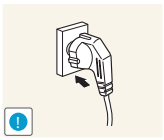


Do not plug many products into the same power socket.

- Otherwise, the socket may overheat and cause a fire.

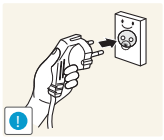
Do not touch the power plug with wet hands.

- Otherwise, an electric shock may result.



Insert the power plug all the way in so it is not loose.

- An unstable connection may cause a fire.



Connect the power plug to a grounded power socket (type 1 insulated devices only).

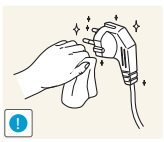
- An electric shock or injury may result.

Do not bend or pull the power cord with force. Do not weigh the power cord down with a heavy object.

- A damaged power cord may cause an electric shock or fire.

Do not place the power cord or product near heat sources.

- An electric shock or fire may result.



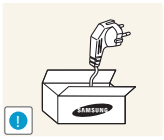
Remove foreign substances such as dust around the plug pins and power socket with a dry cloth.

- Otherwise, a fire may result.

### Caution

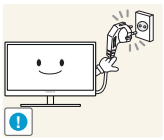
Do not unplug the power cord when the product is in use.

- The product may become damaged by an electric shock.



Do not use the power cord for products other than authorized products supplied by Samsung.

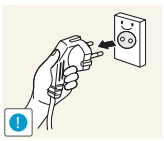
- An electric shock or fire may result.



Keep the power socket where the power cord is connected unobstructed.

- If any problem occurs in the product, unplug the power cable to completely cut the power to the product.

  Power to the product cannot be completely cut off with the power button.



Hold the plug when disconnecting the power cord from the power socket.

- An electric shock or fire may result.

## Installation and Safety

### Warning

DO NOT PLACE CANDLES, INSECT REPELLANTS OR CIGARETTES ON TOP OF THE PRODUCT. DO NOT INSTALL THE PRODUCT NEAR HEAT SOURCES.

- Otherwise, a fire may result.

Avoid installing the product in a narrow space with bad ventilation, such as a bookshelf or wall closet.

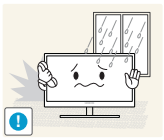
- Otherwise, a fire may result due to an increased internal temperature.

Keep the plastic packaging bag for the product in a place that cannot be reached by children.

- Children may suffocate.

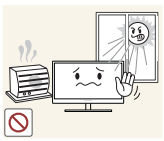
Do not install the product on an unstable or vibrating surface (insecure shelf, sloped surface, etc.).

- The product may fall and break or cause a personal injury.
- Using the product in an area with excess vibration may damage the product or cause a fire.



Do not install the product in a vehicle or a place exposed to dust, moisture (water drips, etc.), oil, or smoke.

- An electric shock or fire may result.



Do not expose the product to direct sunlight, heat, or a hot object such as a stove.

- Otherwise, the product lifespan may be reduced, or a fire may result.

Do not install the product within the reach of young children.

- The product may fall and injure children.

Edible oil, such as soybean oil, can damage or deform the product. Do not install the product in a kitchen or near a kitchen counter.

## Caution

Take care not to drop the product when moving it.

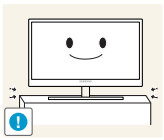
- Otherwise, product failure or personal injury may result.

Do not set down the product on its front.

- The screen may become damaged.

When installing the product on a cabinet or shelf, make sure that the bottom edge of the front of the product is not protruding.

- The product may fall and break or cause a personal injury.
- Install the product only on cabinets or shelves of the right size.



Put down the product carefully.

- The product may fall and break or cause a personal injury.

Installing the product in an unusual place (a place exposed to a lot of fine dust, chemical substances, extreme temperatures or a significant presence of moisture, or a place where the product will operate continuously for an extended period of time) may seriously affect its performance.

- Be sure to consult Samsung Customer Service Center (page 83) before installation if you want to install the product at such a place.

## Operation

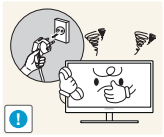
### Warning

High voltage runs through the product. Do not attempt to disassemble, repair, or modify the product on your own.

- An electric shock or fire may result.
- Contact Samsung Customer Service Center (page 83) for repair.

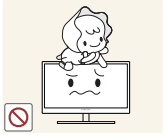
Before moving the product, turn off the power switch and disconnect the power cable and all other connected cables.

- Otherwise, the power cord may be damaged and a fire or electric shock may result.



If the product generates a strange noise, a burning smell, or smoke, remove the power cord immediately and contact Samsung Customer Service Center (page 83).

- An electric shock or fire may result.



Do not let children hang from the product or climb on top of it.

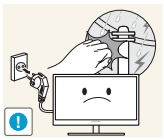
- The product may fall, and your child may become injured or seriously harmed.

If the product falls or the exterior is damaged, power off the product, remove the power cord, and contact Samsung Customer Service Center (page 83).

- Otherwise, an electric shock or fire may result.

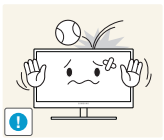
Do not put a heavy object, toy, or sweets on top of the product.

- The product or heavy objects may fall as children try to reach for the toy or sweets resulting in a serious injury.



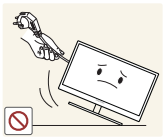
During a lightning or thunderstorm, power off the product and remove the power cable.

- An electric shock or fire may result.



Do not drop objects on the product or apply impact.

- An electric shock or fire may result.

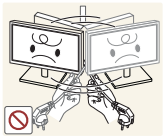


Do not move the product by pulling the power cord or any cable.

- Otherwise, the power cable may be damaged and product failure, an electric shock or fire may result.

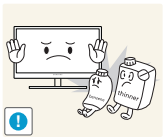
If a gas leakage is found, do not touch the product or power plug. Also, ventilate the area immediately.

- Sparks can cause an explosion or fire.



Do not lift or move the product by the power cord or any cable.

- Otherwise, the power cable may be damaged and product failure, an electric shock or fire may result.



Do not use or keep combustible spray or an inflammable substance near the product.

- An explosion or fire may result.

Ensure the vents are not blocked by tablecloths or curtains.

- Otherwise, a fire may result from an increased internal temperature.

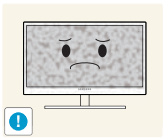
Do not insert a metallic object (a chopstick, coin, hair pin, etc.) or inflammable object (paper, match, etc.) into the vent or ports of the product.

- If water or any foreign substance enters the product, be sure to power off the product, remove the power cord, and contact Samsung Customer Service Center (page 83).
- Product failure, an electric shock or fire may result.

Do not place objects containing liquid (vases, pots, bottles, etc) or metallic objects on top of the product.

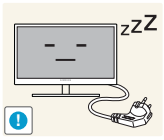
- If water or any foreign substance enters the product, be sure to power off the product, remove the power cord, and contact Samsung Customer Service Center (page 83).
- Product failure, an electric shock or fire may result.

## Caution



Leaving the screen fixed on a stationary image for an extended period of time may cause afterimage burn-in or defective pixels.

- If you are not going to use the product for an extended period of time, activate power-saving mode or a moving-picture screen saver.

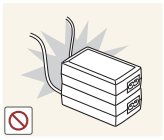



Disconnect the power cord from the power socket if you do not plan on using the product for an extended period of time (vacation, etc).

- Otherwise, a fire may result from accumulated dust, overheating, an electric shock, or electric leakage.

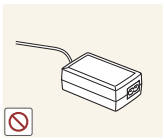
Use the product at the recommended resolution and frequency.

- Your eyesight may deteriorate.



Do not put DC power adapters together.

- Otherwise, a fire may result.



Remove the plastic bag from the DC power adapter before you use it.

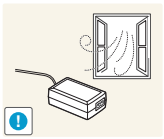
- Otherwise, a fire may result.

Do not let water enter the DC power device or get the device wet.

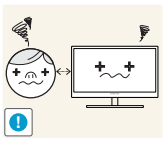
- An electric shock or fire may result.
- Avoid using the product outdoors where it can be exposed to rain or snow.
- Be careful not to get the DC power adapter wet when you wash the floor.

Do not put the DC power adapter near to any heating apparatus.

- Otherwise, a fire may result.



Keep the DC power adapter in a well-ventilated area.



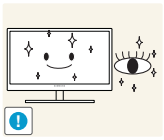
Looking at the screen too close for an extended period of time can deteriorate your eyesight.

Do not hold the monitor upside-down or move it by holding the stand.

- The product may fall and break or cause a personal injury.

Do not use humidifiers or stoves around the product.

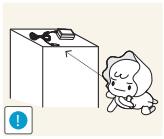
- An electric shock or fire may result.



Rest your eyes for more than 5 minutes for every 1 hour of product use.

- Eye fatigue will be relieved.

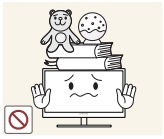
Do not touch the screen when the product has been turned on for an extended period of time as it will become hot.



Store the small accessories used with the product out of reach of children.

Exercise caution when adjusting the product angle or stand height.

- Otherwise, children's fingers or hands may become stuck and injured.
- Tilting the product excessively may cause it to fall and result in personal injury.



Do not place heavy objects on the product.

- Product failure or personal injure may result.

## Correct posture to use the product

Use the product in the correct posture as follows:

- Straighten your back.
- Allow a distance of 45 to 50 cm between your eye and the screen, and look slightly downward at the screen.

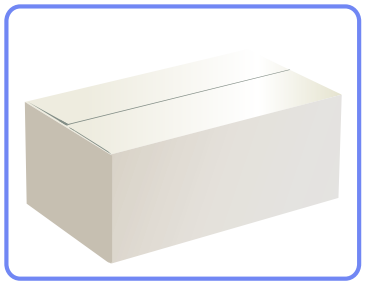
  Keep your eyes directly in front of the screen.
- Adjust the angle so light does not reflect on the screen.
- Keep your forearms perpendicular to your upper arms and level with the back of your hands.
- Keep your elbows at about a right angle.
- Adjust the height of the product so you can keep your knees bent at 90 degrees or more, your heels attached to the floor, and your arms lower than your heart.

# 1 Preparations

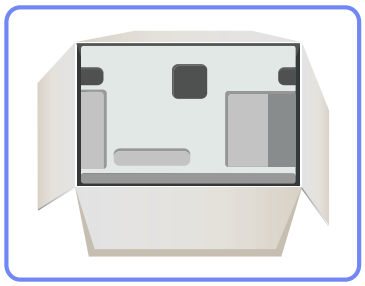
## 1.1 Checking the Contents

### 1.1.1 Removing the Packaging

1 Open the packaging box. Be careful not to damage the product when you open the packaging with a sharp instrument.

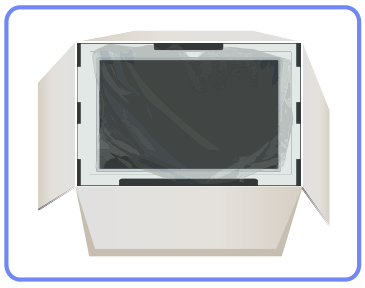


2 Remove the styrofoam from the product.



3 Check the components and remove the styrofoam and plastic bag.

This image is for reference only.

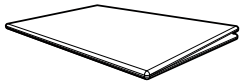


4 Store the box in a dry area so that it can be used when moving the product in the future.

## 1.1.2 Checking the Components

- Contact the dealer from whom you purchased the product if any item is missing.
- The appearance of the components and items sold separately may differ from the image shown.

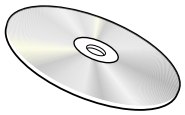
### Components



Quick setup guide

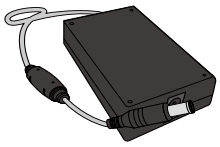
Warranty card

(Not available in some locations)

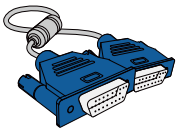


User manual

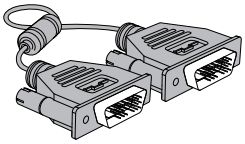
Power cable



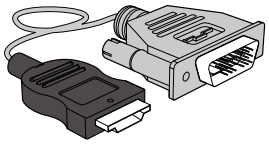
DC power adapter



D-SUB cable (optional)



DVI cable (optional)



HDMI-DVI cable (optional)

Stand base

Stand neck

(Other areas)

Stand neck

(North America only)

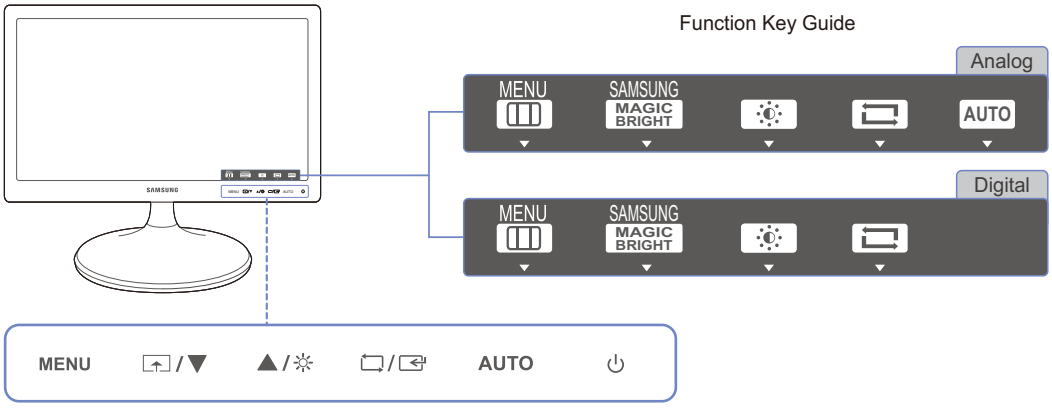
Components may vary depending on the country.

# 1.2 Parts

## 1.2.1 Frontal Button

The color and shape of parts may differ from what is shown.

Specifications are subject to change without notice to improve quality.

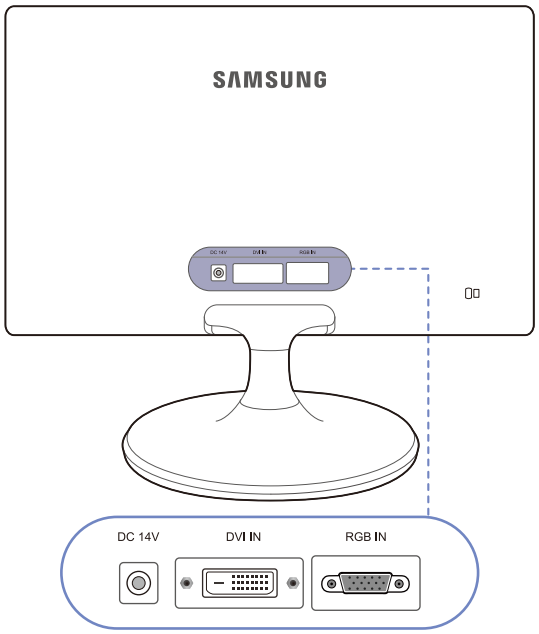



| Icons | Description |
|---|---|
| MENU | Open or close the onscreen display (OSD) menu, or return to the parent menu.<br>• OSD control lock: Maintain the current settings, or lock the OSD control to prevent unintended changes to settings.<br>• Enable: To lock the OSD control, press and hold the [**MENU**] button for 10 seconds.<br>• Disable: To unlock the OSD control, press and hold the [**MENU**] button for more than 10 seconds.<br>If the OSD control is locked,<br>• **Brightness**, **Contrast** can be adjusted, and **INFORMATION** can be viewed.<br>• The **Customized Key** function can be used by pressing the [] button. (The **Customized Key** is available even when the OSD control is locked.) |
| | Configure **Customized Key** and press []. The following options will be enabled.<br>SAMSUNG MAGIC**Bright** - **Eco Saving** - **Image Size**<br>To configure **Customized Key**, go to **SETUP & RESET** → **Customized Key** and select the mode you want. |
| ▲/▼ | Move to the upper or lower menu or adjust the value for an option on the OSD menu. |

| Icons | Description |
|---|---|
| ☼ | Use this button to control the brightness and contrast of the screen. |
| ⮌/⮎ | Confirm a menu selection.<br>Pressing the [⮌/⮎] button when the OSD menu is not displayed will change the input source (**Analog**/**DVI**). If you power on the product or change the input source by pressing the [⮌/⮎] button, a message that shows the changed input source will appear at the top left corner of the screen. |
| AUTO | Press the [AUTO] button to automatically adjust the screen settings.<br>• Changing the resolution in Display Properties will activate the **Auto Adjustment** function.<br>• Available only in **Analog** mode. |
| ⏻ | Turn the screen on or off. |
| Function Key Guide | When a control button on the product is pressed, the Function Key Guide will be displayed before the onscreen menu opens.<br>(The guide shows the function of the button pressed.)<br>To access the onscreen menu when the guide is displayed, press the corresponding button again.<br>The Function Key Guide may vary depending on the function or product model.<br>Refer to the actual product. |

## 1.2.2 Reverse Side

- The color and shape of parts may differ from what is shown.
  Specifications are subject to change without notice to improve quality.
- Provided ports may vary depending on the product.

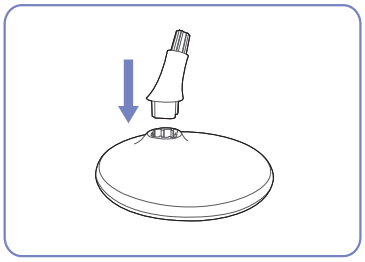



| Port | Description |
|---|---|
| DC 14V | Connects to the DC power adapter. |
| DVI IN | Connects to a source device via a DVI cable. |
| RGB IN | Connect to a PC using the D-SUB cable. |

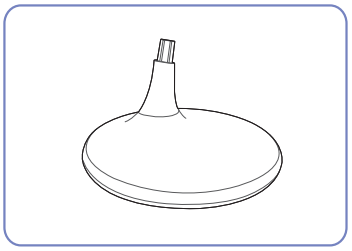
# 1.3 Installation

## 1.3.1 Attaching the Stand

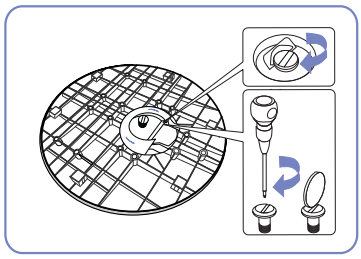
Before assembling the product, place the product down on a flat and stable surface so that the screen is facing downwards.



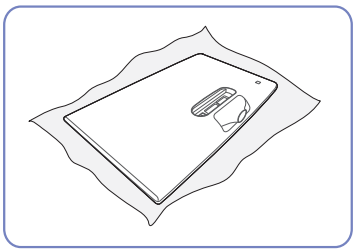
Insert the stand neck into the stand base in the direction shown in the figure.



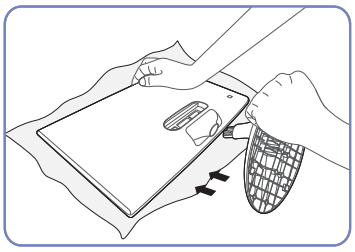
Check that the stand neck is firmly connected.



Tightly fasten the connecting screw at the bottom of the stand base.



Place a soft cloth over the table to protect the product and place the product onto the cloth so that the front of the product is facing downwards.



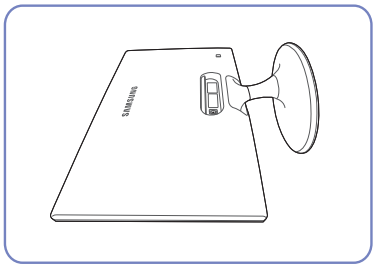
Hold the main body of the product with your hand as shown by the figure.

Push the assembled stand into the main body in the direction of the arrow as shown in the figure.

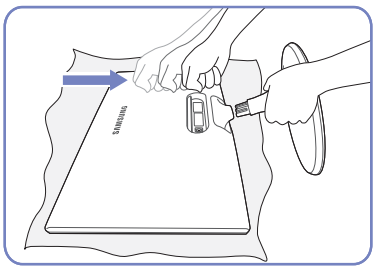
- Caution

Do not hold the product upside down only by the stand.

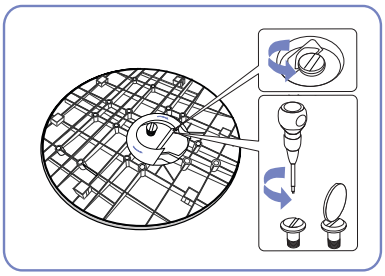
## 1.3.2 Removing the Stand



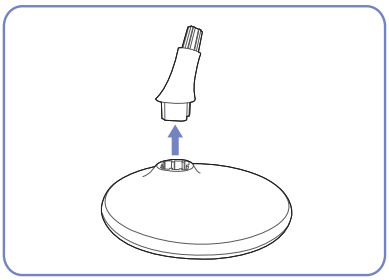
Place a soft cloth over the table to protect the product and place the product onto the cloth so that the front of the product faces downwards.



While holding the stand neck with one hand, pound the other fisted hand down onto the top of the stand base in the direction of the arrow to detach the stand base.

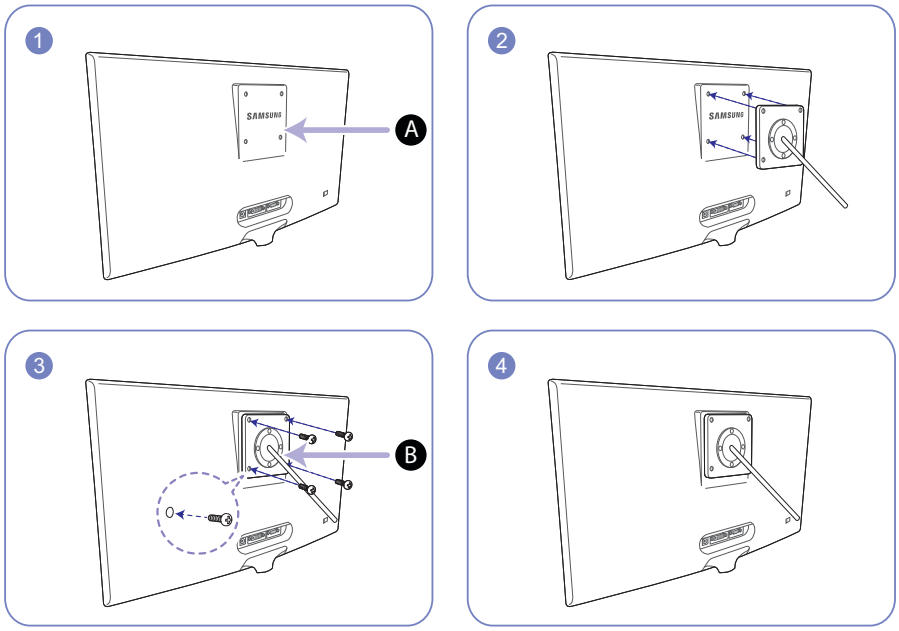


Turn the connecting screw at the bottom of the stand base to separate it.



Remove the stand neck from the stand base by pulling it in the direction of the arrow as shown in the figure.

### 1.3.3 Installing a Wall-mount Kit or Desktop Stand




A Attach the wall-mount kit or desktop stand here

B Bracket (sold separately)

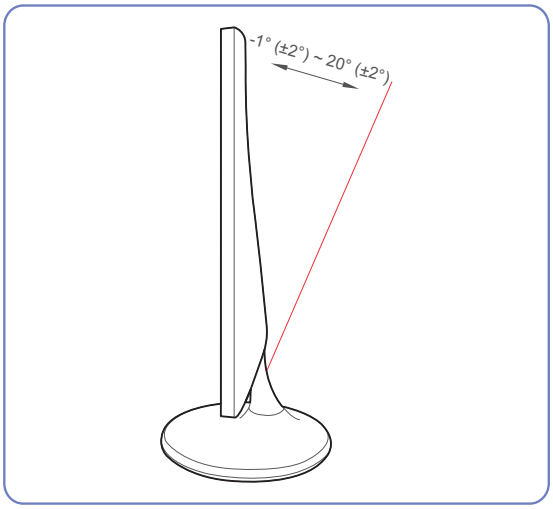
Align the grooves and tightly fasten the screws on the bracket on the product with the corresponding parts on the wall-mount kit or desktop stand you want to attach.

Notes

- Using a screw longer than the standard length can damage the internal components of the product.
- The length of screws required for a wall mount that does not comply with the VESA standards may vary depending on the specifications.
- Do not use screws that do not comply with the VESA standards. Do not attach the wall-mount kit or desktop stand using excessive force. The product may get damaged or fall and cause personal injury. Samsung shall not be held liable for any damage or injury caused by using improper screws or attaching the wall-mount kit or desktop stand using excessive force.
- Samsung shall not be held liable for any product damage or personal injury caused by using a wallmount kit other than the one specified or from an attempt to install the wall-mount kit on your own.
- To mount the product on a wall, ensure you purchase a wall-mount kit that can be installed 10 cm or farther away from the wall.
- Be sure to use a wall-mount kit that complies with the standards.
- To install the monitor using a wall mount, disconnect the stand base from the monitor.

### 1.3.4 Adjusting the Product Tilt

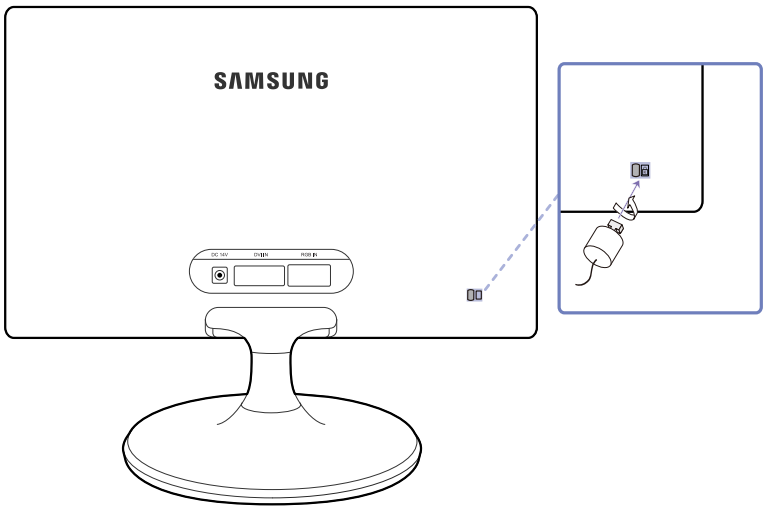
The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.




- You can adjust the tilt of your monitor.
- Hold the lower part of the product and adjust the tilt carefully.

### 1.3.5 Anti-theft Lock

An anti-theft lock allows you to use the product securely even in public places. The locking device shape and locking method depend on the manufacturer. Refer to the user guide provided with your anti-theft locking device for details. The lock device is sold separately.



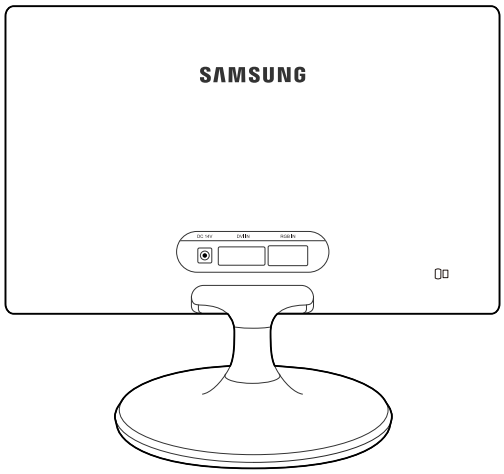

The color and shape of parts may differ from what is shown. Specifications are subject to change without notice to improve quality.

**To lock an anti-theft locking device:**

1. Fix the cable of your anti-theft locking device to a heavy object such as a desk.
2. Put one end of the cable through the loop on the other end.
3. Insert the Kensington Lock into the security slot on the back of the display.
4. Lock the locking device.

- An anti-theft locking device can be purchased separately.
- Refer to the user guide provided with your anti-theft locking device for details.
- Anti-theft locking devices can be purchased at electronics retailers or online.

# 2.1 Before Connecting




## 2.1.1 Pre-connection Checkpoints

- Before connecting a source device, read the user manual provided with it.
  The number and locations of ports on source devices may differ from device to device.
- Do not connect the power cable until all connections are completed.
  Connecting the power cable during connection may damage the product.
- Check the types of ports at the back of the product you want to connect.

## 2.2 Connecting and Using a PC

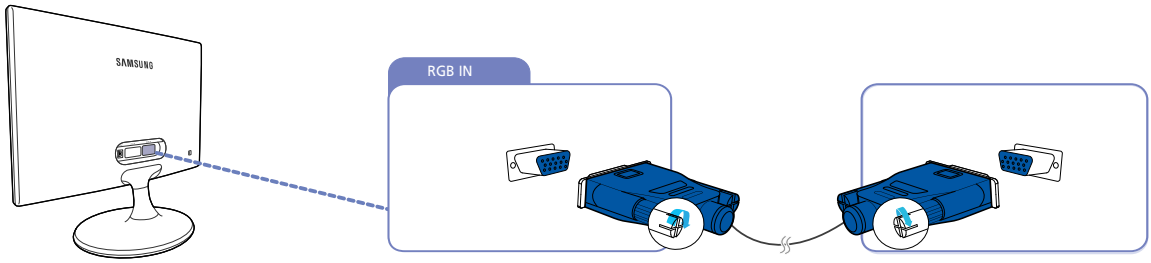
Select a connection method suitable for your PC.

Connecting parts may differ in different products.

### 2.2.1 Connection Using the D-SUB Cable (Analog Type)

Do not connect the power cable before connecting all other cables.

Ensure you connect a source device first before connecting the power cable.



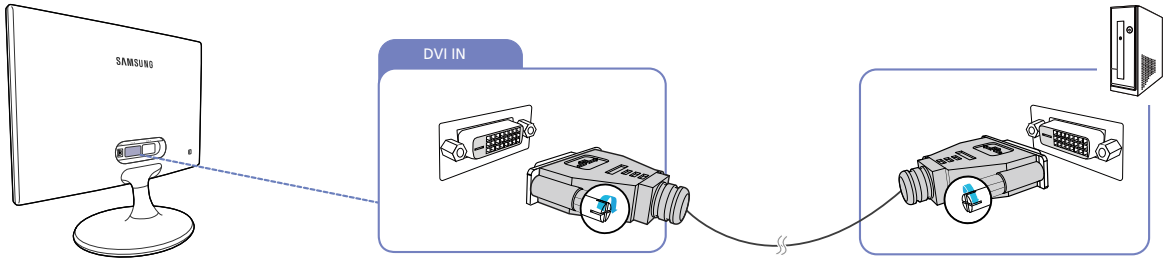

1. Connect the D-SUB cable to the [RGB IN] port on the back of the product and the RGB port on the PC.
2. Connect the DC power adapter to the product and a power socket.
   Next, turn on the power switch on the PC. (For details, refer to "2.2.4 Connecting the Power".)
3. Press [⇆/⇆] to change the input source to **Analog**.

Provided ports may vary depending on the product.

## 2.2.2 Connection Using the DVI Cable

Do not connect the power cable before connecting all other cables.

Ensure you connect a source device first before connecting the power cable.




1 Connect the DVI cable to the [DVI IN] port on the back of the product and the DVI port on the PC.

2 Connect the DC power adapter to the product and a power socket.

Next, turn on the power switch on the PC. (For details, refer to "2.2.4 Connecting the Power".)

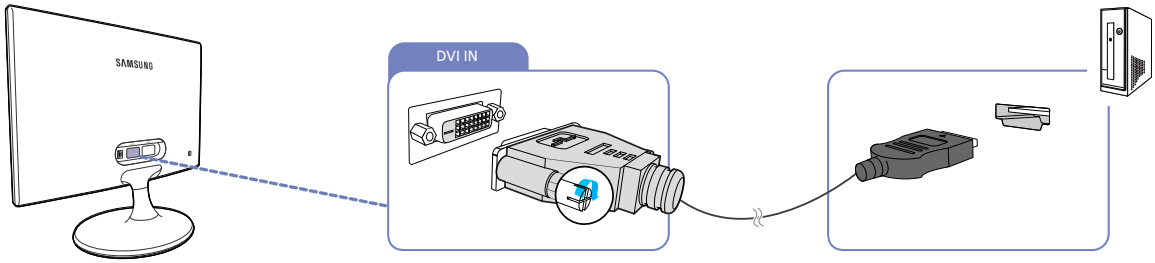
3 Press [⇆/⇨] to change the input source to **DVI**.

Provided ports may vary depending on the product.

## 2.2.3 Connection Using the DVI-HDMI Cable

Do not connect the power cable before connecting all other cables.

Ensure you connect a source device first before connecting the power cable.




1 Connect the DVI-HDMI cable to the [DVI IN] port on the back of the product and the HDMI port on the PC.

2 Connect the DC power adapter to the product and a power socket.

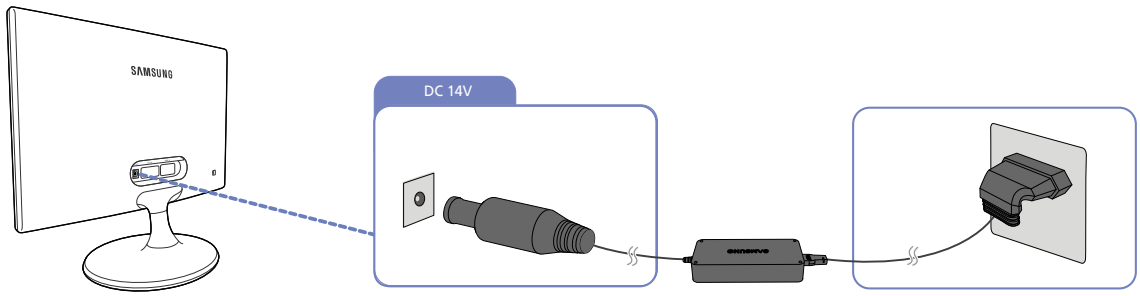
Next, turn on the power switch on the PC. (For details, refer to "2.2.4 Connecting the Power".)

3 Press [⇆/⇨] to change the input source to **DVI**.

Provided ports may vary depending on the product.

### 2.2.4 Connecting the Power

Connect the power adapter to [DC 14V] jack on the rear of the product.
Connect the power cable to the DC power adapter. Next, connect the DC power adapter to the product.
Plug in the power cable to the power socket.

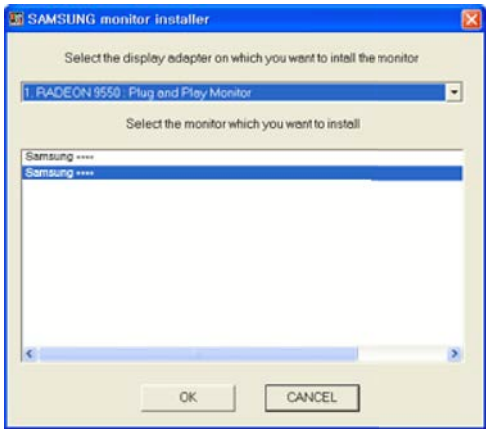



The input voltage is switched automatically.

### 2.2.5 Driver Installation

- You can set the optimum resolution and frequency for this product by installing the corresponding drivers.
- An installation driver is contained on the CD supplied with the product.
- If the file provided is faulty, visit the Samsung homepage (http://www.samsung.com/) and download the file.

1. Insert the user manual CD provided with the product into the CD-ROM drive.
2. Click "Windows Driver".
3. Follow the instructions given on the screen to proceed with installation.
4. Select your product model from the list of models.

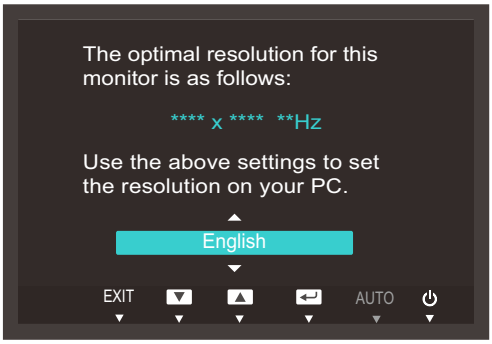

SAMSUNG monitor installer
Select the display adapter on which you want to intall the monitor
1. RADEON 9550 : Plug and Play Monitor
Select the monitor which you want to install
Samsung ****
Samsung ****
OK
CANCEL

5. Go to Display Properties and check that the resolution and refresh rate are appropriate.
   Refer to your Windows OS manual for further details.

### 2.2.6 Setting Optimum Resolution

An information message about setting optimum resolution will appear if you power on the product for the first time after purchase.

Select a language on the product and change the resolution on your PC to the optimum setting.


The optimal resolution for this monitor is as follows:
**** x **** **Hz
Use the above settings to set the resolution on your PC.
English
EXIT
AUTO

1 Press [▲/▼] to move to the language you want and press [⏎/⏎].

2 To hide the information message, press [MENU].

- If the optimum resolution is not selected, the message will appear up to three times for a specified time even when the product is turned off and on again.
- The optimum resolution can also be selected in **Control Panel** on your PC.

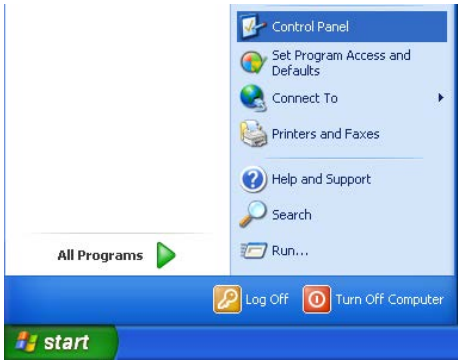
### 2.2.7 Changing the Resolution Using a PC

- Adjust the resolution and refresh rate in Control Panel on your PC to obtain optimum picture quality.
- The picture quality of TFT-LCDs may degrade if the optimum resolution is not selected.

Changing the Resolution on Windows XP

Go to **Control Panel** → **Display** → **Settings** and change the resolution.

1



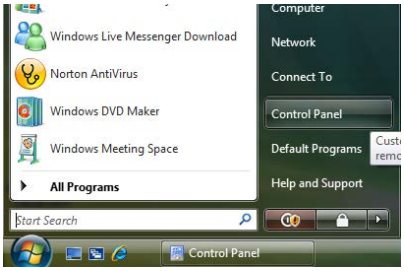

2

3

Changing the Resolution on Windows Vista

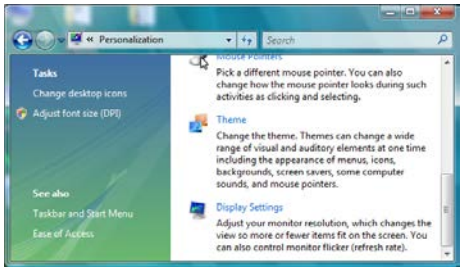
Go to **Control Panel** → **Personalization** → **Display Settings** and change the resolution.

1




2

3

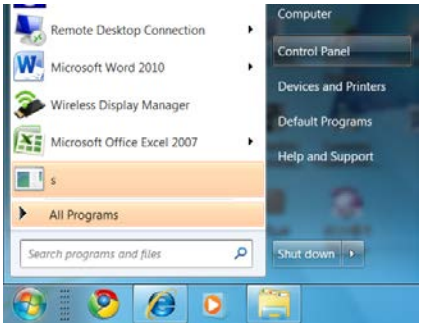

Personalization
Search
Tasks
Change desktop icons
Adjust font size (DPI)
See also
Taskbar and Start Menu
Ease of Access
Pick a different mouse pointer. You can also change how the mouse pointer looks during such activities as clicking and selecting.
Theme
Change the theme. Themes can change a wide range of visual and auditory elements at one time including the appearance of menus, icons, backgrounds, screen savers, some computer sounds, and mouse pointers.
Display Settings
Adjust your monitor resolution, which changes the view so more or fewer items fit on the screen. You can also control monitor flicker (refresh rate).

4

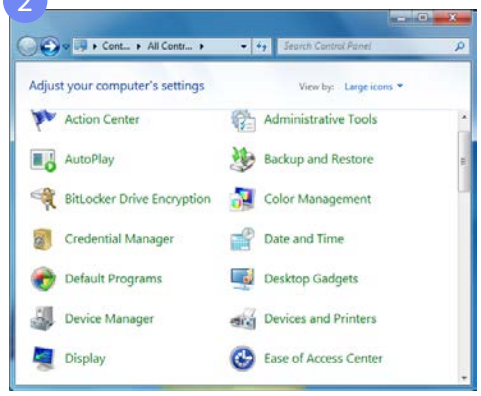
Changing the Resolution on Windows 7

Go to **Control Panel** → **Display** → **Screen Resolution** and change the resolution.

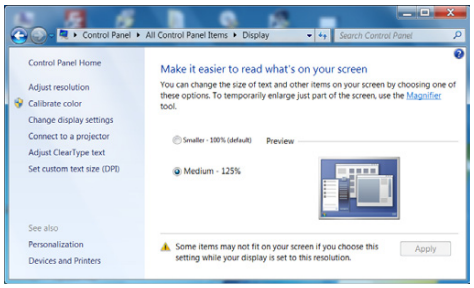
1



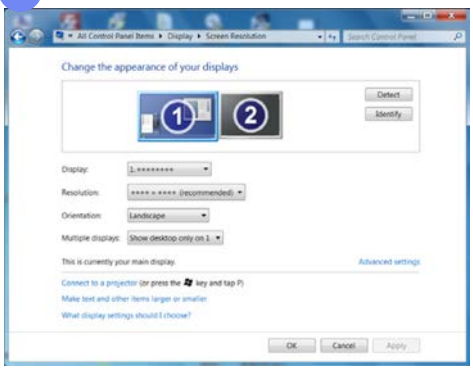

2




3




4

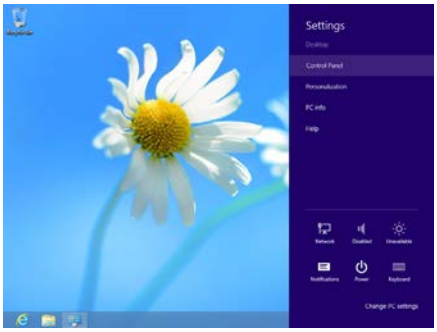


Changing the Resolution on Windows 8

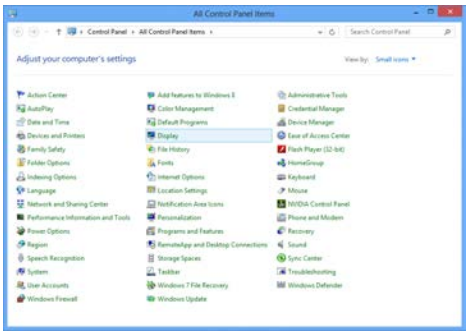
Go to **Settings** → **Control Panel** → **Display** → **Screen Resolution** and change the resolution.

1

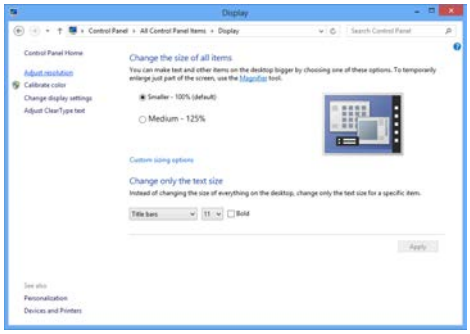
2



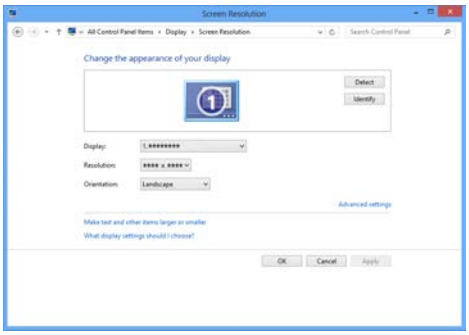

3




4




5



# 3 Screen Setup

Configure the screen settings such as brightness.

## 3.1 Brightness

You can adjust the general brightness of the picture. (Range: 0~100)

A higher value will make the picture appear brighter.

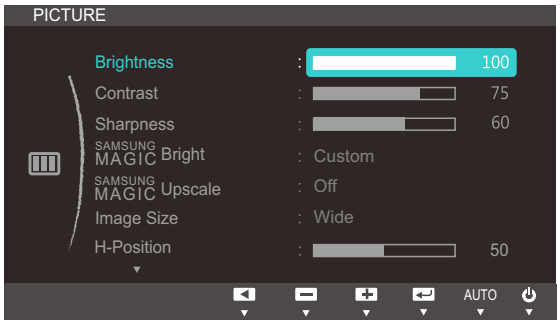
- This menu is not available when SAMSUNG MAGIC**Bright** is set to **Dynamic Contrast** mode.
- This menu is not available when **Eco Saving** is enabled.

### 3.1.1 Configuring Brightness

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **PICTURE** and press [⮌/⮎] on the product.
3. Press [▲/▼] to move to **Brightness** and press [⮌/⮎] on the product.

   The following screen will appear.




4. Adjust the **Brightness** using the [▲/▼] buttons.
5. The selected option will be applied.

# 3.2 Contrast

Adjust the contrast between the objects and background. (Range: 0~100)

A higher value will increase the contrast to make the object appear clearer.

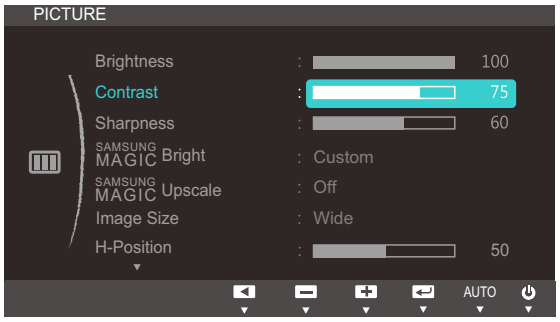
This option is not available when SAMSUNG MAGIC**Bright** is in **Cinema** or **Dynamic Contrast** mode.

## 3.2.1 Configuring Contrast

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **PICTURE** and press [⮌/⮎] on the product.
3. Press [▲/▼] to move to **Contrast** and press [⮌/⮎] on the product.

   The following screen will appear.




4. Adjust the **Contrast** using the [▲/▼] buttons.
5. The selected option will be applied.

# 3.3 Sharpness

Make the outline of objects more clear or blurry. (Range: 0~100)

A higher value will make the outline of objects clearer.

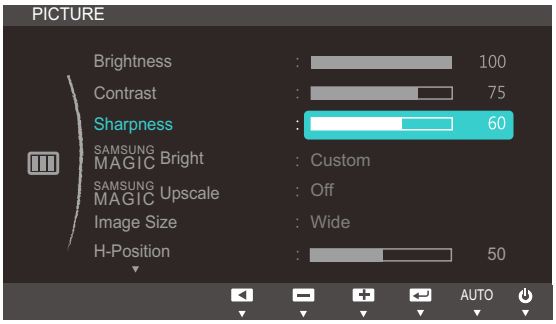
- This option is not available when SAMSUNG MAGIC**Bright** is in **Cinema** or **Dynamic Contrast** mode.
- This menu is not available when SAMSUNG MAGIC**Upscale** is in **Mode1** or **Mode2**.

## 3.3.1 Configuring Sharpness

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **PICTURE** and press [⮌/⮎] on the product.
3. Press [▲/▼] to move to **Sharpness** and press [⮌/⮎] on the product.

   The following screen will appear.




4. Adjust the **Sharpness** using the [▲/▼] buttons.
5. The selected option will be applied.

# 3.4 SAMSUNG MAGIC Bright

This menu provides an optimum picture quality suitable for the environment where the product will be used.

This menu is not available when **Eco Saving** is enabled.

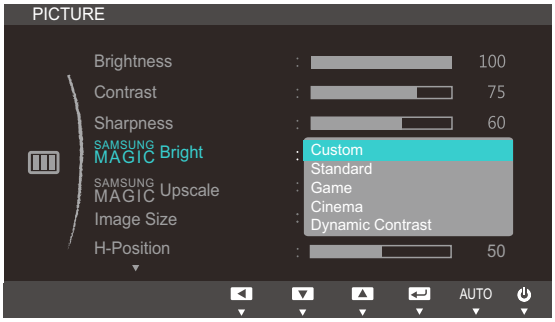
You can customize the brightness to suit your preferences.

## 3.4.1 Configuring SAMSUNG MAGIC Bright

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to **SAMSUNG MAGIC Bright** and press [⏎] on the product.

   The following screen will appear.




- **Custom**: Customize the contrast and brightness as required.
- **Standard**: Obtain a picture quality suitable for editing documents or using Internet.
- **Game**: Obtain a picture quality suitable for playing games that involve many graphic effects and dynamic movements.
- **Cinema**: Obtain the brightness and sharpness of TVs suitable for enjoying video and DVD content.
- **Dynamic Contrast**: Obtain balanced brightness through automatic contrast adjustment.

4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

# 3.5 SAMSUNG MAGIC Upscale

SAMSUNG MAGIC**Upscale** function can enhance the layers of the picture details and the vividness of the picture.

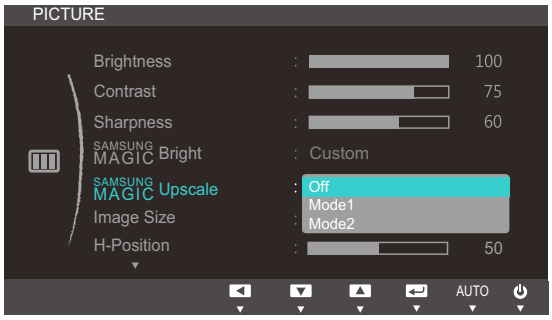
- The function has more obvious effects on low-resolution pictures.
- This menu is not available when SAMSUNG MAGIC**Bright** is in **Cinema** or **Dynamic Contrast** mode.

## 3.5.1 Configuring SAMSUNG MAGIC Upscale

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to SAMSUNG MAGIC**Upscale** and press [⏎] on the product.

   The following screen will appear.




   Comparing with **Mode1**, **Mode2** has a stronger effect.
4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

# 3.6 Image Size

Change the picture size.

## 3.6.1 Changing the Image Size

1 Press any button on the front of the product to display the Function Key Guide.

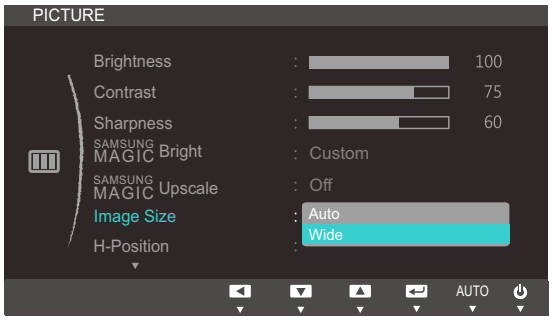
Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.

3 Press [▲/▼] to move to **Image Size** and press [⏎] on the product.

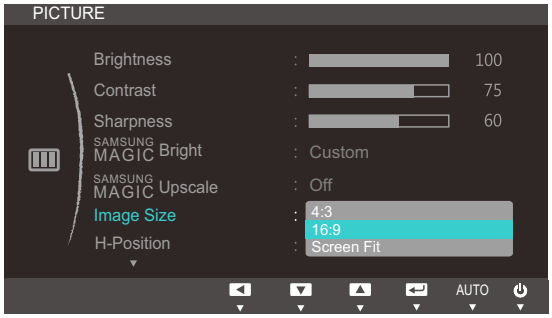
The following screen will appear.

In **PC** mode




- **Auto**: Display the picture according to the aspect ratio of the input source.
- **Wide**: Display the picture in full screen regardless of the aspect ratio of the input source.

In **AV** mode




- **4:3**: Display the picture with an aspect ratio of 4:3. Suitable for videos and standard broadcasts.
- **16:9**: Display the picture with an aspect ratio of 16:9.
- **Screen Fit**: Display the picture with the original aspect ratio without cutting off.

- Changing the screen size is available when the following conditions are satisfied.
- The function may not be supported depending on the ports provided with the product.
  - A digital output device is connected using the DVI cable.

- The input signal is 480p, 576p, 720p, or 1080p and monitor can display normally (Not every model can support all of these signals.).
- This can only be set when the external input is connected through DVI and **PC/AV Mode** is set to **AV**.

4 Press [▲/▼] to move to the option you want and press [⏎/⏎].

5 The selected option will be applied.

# 3.7 H-Position & V-Position

**H-Position**: Move the screen to the left or right.

**V-Position**: Move the screen up or down.

- This menu is available in **Analog** mode only.
- This menu is only available when **Image Size** is set to **Screen Fit** in **AV** Mode. When a 480P or 576P or 720P or 1080P signal is input in **AV** mode and the monitor can display normally, select **Screen Fit** to adjust horizontal position in 0-6 levels.

## 3.7.1 Configuring H-Position & V-Position

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to **H-Position** or **V-Position**, and press [⏎].

   The following screen will appear.

4. Press [▲/▼] to configure **H-Position** or **V-Position**.
5. The selected option will be applied.

# 3.8 Coarse

Adjust the screen frequency.

This menu is available in **Analog** mode only.

## 3.8.1 Adjusting Coarse

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **PICTURE** and press [⏎] on the product.
3. Press [▲/▼] to move to **Coarse** and press [⏎] on the product.

   The following screen will appear.

4. Adjust the **Coarse** using the [▲/▼] buttons.
5. The selected option will be applied.

# 3.9 Fine

Fine-adjust the screen to obtain a vivid picture.

This menu is available in **Analog** mode only.

## 3.9.1 Adjusting Fine

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.

2. Press [▲/▼] to move to **PICTURE** and press [⮌/⮎] on the product.
3. Press [▲/▼] to move to **Fine** and press [⮌/⮎] on the product.

   The following screen will appear.

4. Adjust the **Fine** using the [▲/▼] buttons.
5. The selected option will be applied.

# 4 Configuring Tint

Adjust the tint of the screen. This menu is not available when SAMSUNG MAGIC**Bright** is set to **Cinema** or **Dynamic Contrast** mode.

## 4.1 Red

Adjust the value of the color red in the picture. (Range: 0~100)

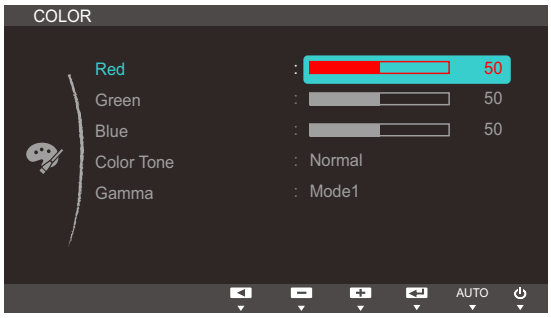
A higher value will increase the intensity of the color.

### 4.1.1 Configuring Red

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [MENU] to display the corresponding menu screen.
2. Press [▲/▼] to move to **COLOR** and press [⏎] on the product.
3. Press [▲/▼] to move to **Red** and press [⏎] on the product.

   The following screen will appear.




4. Adjust the **Red** using the [▲/▼] buttons.
5. The selected option will be applied.

# 4.2 Green

Adjust the value of the color green in the picture. (Range: 0~100)

A higher value will increase the intensity of the color.

## 4.2.1 Configuring Green

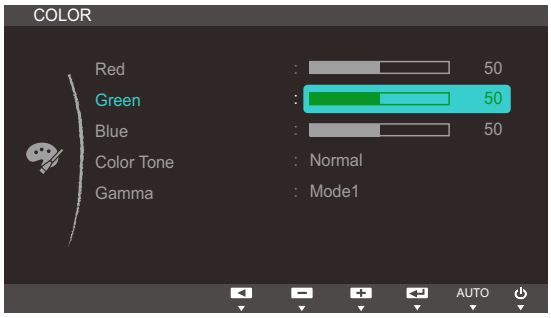
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [MENU] to display the corresponding menu screen.

2 Press [▲/▼] to move to **COLOR** and press [⏎] on the product.

3 Press [▲/▼] to move to **Green** and press [⏎] on the product.

The following screen will appear.




4 Adjust the **Green** using the [▲/▼] buttons.

5 The selected option will be applied.

# 4.3 Blue

Adjust the value of the color blue in the picture. (Range: 0~100)

A higher value will increase the intensity of the color.

## 4.3.1 Configuring Blue

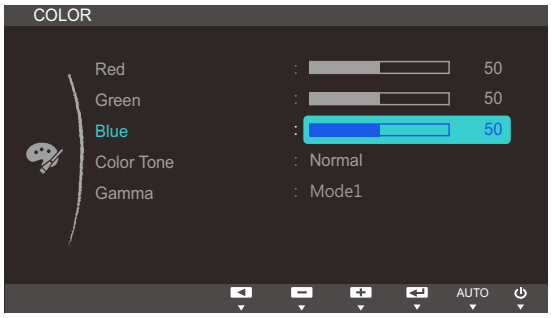
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [MENU] to display the corresponding menu screen.

2 Press [▲/▼] to move to **COLOR** and press [⏎] on the product.

3 Press [▲/▼] to move to **Blue** and press [⏎] on the product.

The following screen will appear.




4 Adjust the **Blue** using the [▲/▼] buttons.

5 The selected option will be applied.

# 4.4 Color Tone

Adjust the general color tone of the picture.

## 4.4.1 Configuring the Color Tone Settings

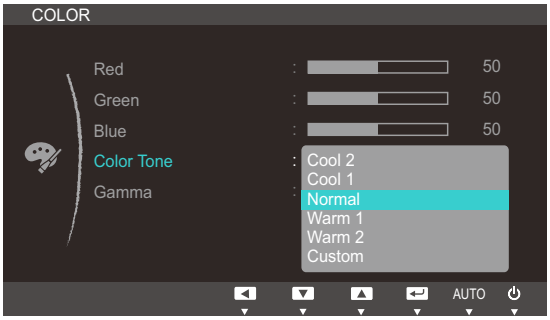
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [MENU] to display the corresponding menu screen.

2 Press [▲/▼] to move to **COLOR** and press [⏎] on the product.

3 Press [▲/▼] to move to **Color Tone** and press [⏎] on the product.

The following screen will appear.




- **Cool 2**: Set the color temperature to be cooler than **Cool 1**.
- **Cool 1**: Set the color temperature to be cooler than **Normal** mode.
- **Normal**: Display the standard color tone.
- **Warm 1**: Set the color temperature to be warmer than **Normal** mode.
- **Warm 2**: Set the color temperature to be warmer than **Warm 1**.
- **Custom**: Customize the color tone.

4 Press [▲/▼] to move to the option you want and press [⏎].

5 The selected option will be applied.

# 4.5 Gamma

Adjust the mid-range brightness (Gamma) of the picture.

## 4.5.1 Configuring Gamma

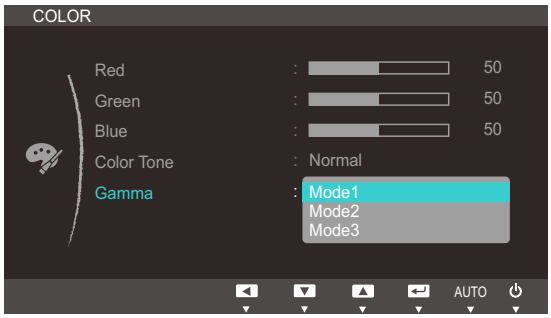
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **COLOR** and press [⮌/⮎] on the product.

3 Press [▲/▼] to move to **Gamma** and press [⮌/⮎] on the product.

The following screen will appear.




4 Press [▲/▼] to move to the option you want and press [⮌/⮎].

5 The selected option will be applied.

# 5.1 Language

Set the menu language.

- A change to the language setting will only be applied to the onscreen menu display.
- It will not be applied to other functions on your PC.

## 5.1.1 Configuring Language

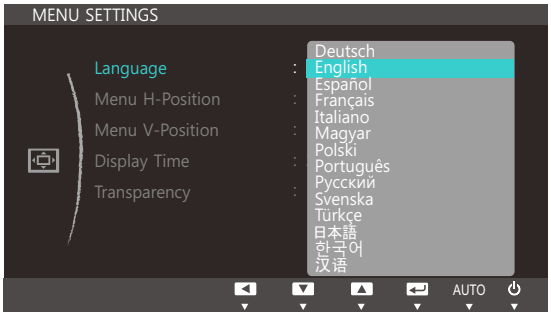
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [MENU] to display the corresponding menu screen.

2 Press [▲/▼] to move to **MENU SETTINGS** and press [⏎] on the product.

3 Press [▲/▼] to move to **Language** and press [⏎] on the product.

The following screen will appear.




4 Press [▲/▼] to move to the language you want and press [⏎].

5 The selected option will be applied.

# 5.2 Menu H-Position & Menu V-Position

**Menu H-Position**: Move the menu position to the left or right.

**Menu V-Position**: Move the menu position up or down.

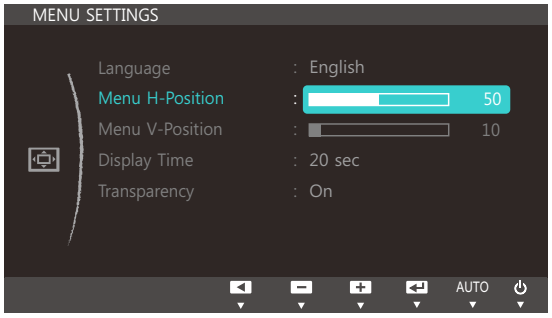
## 5.2.1 Configuring Menu H-Position & Menu V-Position

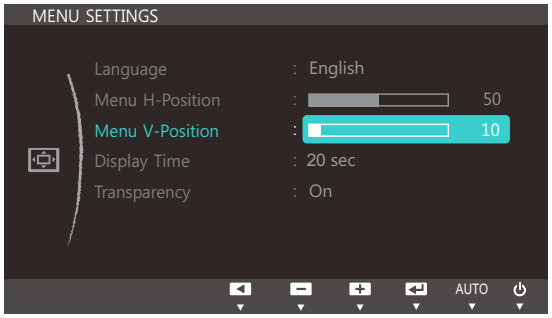
1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [MENU] to display the corresponding menu screen.

2. Press [▲/▼] to move to **MENU SETTINGS** and press [⮌/⮐] on the product.
3. Press [▲/▼] to move to **Menu H-Position** or **Menu V-Position**, and press [⮌/⮐] on the product.

   The following screen will appear.




4. Press [▲/▼] to configure **Menu H-Position** or **Menu V-Position**.
5. The selected option will be applied.

# 5.3 Display Time

Set the on-screen display (OSD) menu to automatically disappear if the menu is not used for a specified period of time.

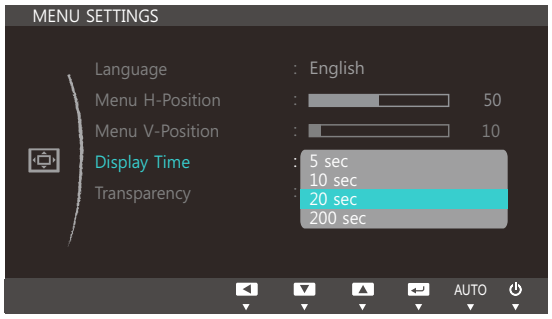
**Display Time** can be used to specify the time after which you want the OSD menu to disappear.

## 5.3.1 Configuring Display Time

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [MENU] to display the corresponding menu screen.
2. Press [▲/▼] to move to **MENU SETTINGS** and press [⏎] on the product.
3. Press [▲/▼] to move to **Display Time** and press [⏎] on the product.

   The following screen will appear.




4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

# 5.4 Transparency

Set the transparency for the menu windows:

## 5.4.1 Changing Transparency

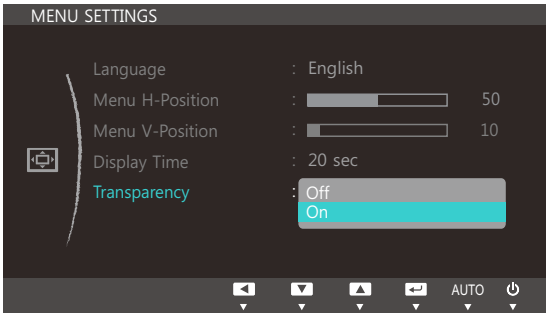
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **MENU SETTINGS** and press [⏎] on the product.

3 Press [▲/▼] to move to **Transparency** and press [⏎] on the product.

The following screen will appear.




4 Press [▲/▼] to move to the option you want and press [⏎].

5 The selected option will be applied.

# 6.1 Reset

Return all the settings for the product to the default factory settings.

## 6.1.1 Initializing Settings (Reset)

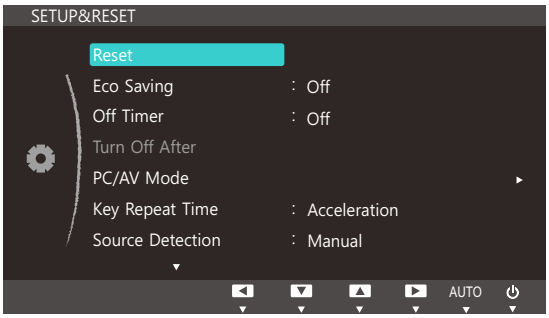
1 Press any button on the front of the product to display the Function Key Guide.

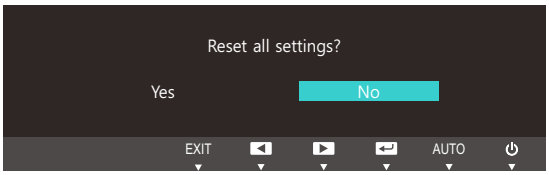
Next, press [MENU] to display the corresponding menu screen.

2 Press [▲/▼] to move to **SETUP&RESET** and press [⏎/⏎] on the product.

3 Press [▲/▼] to move to **Reset** and press [⏎/⏎] on the product.

The following screen will appear.




4 Press [▲/▼] to move to the option you want and press [⏎/⏎].

5 The selected option will be applied.

# 6.2 Eco Saving

The **Eco Saving** function reduces power consumption by controlling the electric current used by the monitor panel.

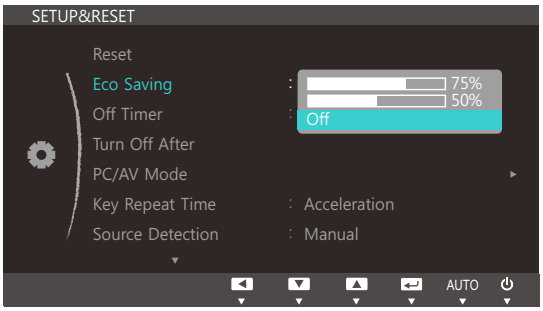
This menu is not available when SAMSUNG MAGIC**Bright** is in **Dynamic Contrast** mode.

## 6.2.1 Configuring Eco Saving

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⮌/⮐] on the product.
3. Press [▲/▼] to move to **Eco Saving** and press [⮌/⮐] on the product.

   The following screen will appear.




- **75%**: Change the monitor power consumption to 75% of the default level.
- **50%**: Change the monitor power consumption to 50% of the default level.
- **Off**: Deactivate the **Eco Saving** function.

4. Press [▲/▼] to move to the option you want and press [⮌/⮐].
5. The selected option will be applied.

# 6.3 Off Timer

You can set the product to automatically turn off.

## 6.3.1 Configuring Off Timer

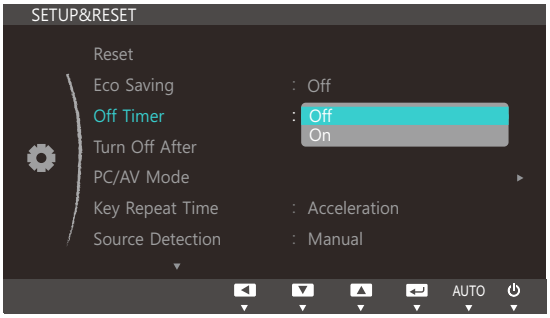
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **SETUP&RESET** and press [⮌/⮎] on the product.

3 Press [▲/▼] to move to **Off Timer** and press [⮌/⮎] on the product.

The following screen will appear.




- **Off**: Deactivate the off timer so that the product does not power off automatically.
- **On**: Activate the off timer so that the product powers off automatically.

4 Press [▲/▼] to move to the option you want and press [⮌/⮎].

5 The selected option will be applied.

# 6.4 Turn Off After

The off timer can be set within a range of 1 to 23 hours. The product will automatically power off after the specified number of hours.

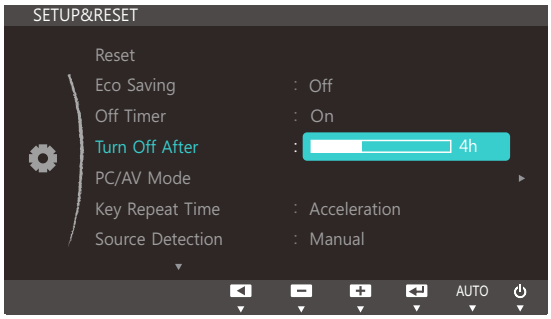
This option is only available when **Off Timer** is set to **On**.

## 6.4.1 Configuring Turn Off After

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⏎] on the product.
3. Press [▲/▼] to move to **Turn Off After** and press [⏎] on the product.

   The following screen will appear.




4. Press [▲/▼] to configure **Turn Off After**.
5. The selected option will be applied.

# 6.5 PC/AV Mode

Set **PC/AV Mode** to **AV**. The picture size will be enlarged. This option is useful when you view a movie.

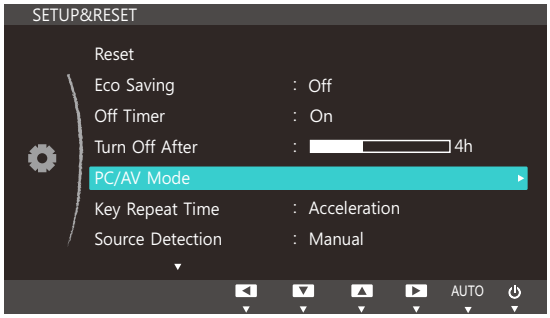
- This function does not support **Analog** mode.
- Supplied for the wide models only such as 16:9 or 16:10.

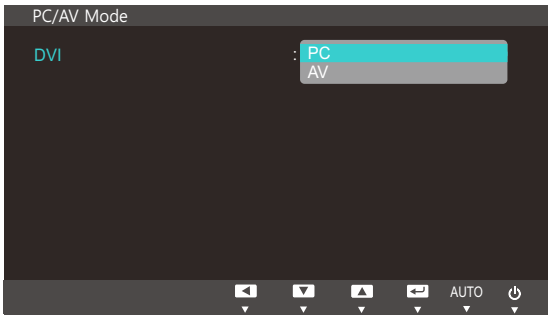
## 6.5.1 Configuring PC/AV Mode

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.
2. Press [▲/▼] to move to **SETUP&RESET** and press [⏎] on the product.
3. Press [▲/▼] to move to **PC/AV Mode** and press [⏎] on the product.

   The following screen will appear.




4. Press [▲/▼] to move to the option you want and press [⏎].
5. The selected option will be applied.

# 6.6 Key Repeat Time

Control the response rate of a button when the button is pressed.

## 6.6.1 Configuring Key Repeat Time

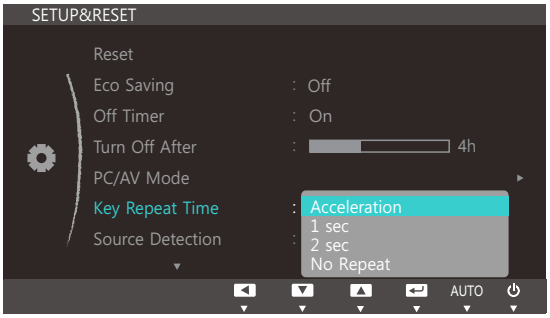
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **SETUP&RESET** and press [⏎] on the product.

3 Press [▲/▼] to move to **Key Repeat Time** and press [⏎] on the product.

The following screen will appear.




- **Acceleration**, **1 sec**, or **2 sec** can be selected. If **No Repeat** is selected, a command responds only once when a button is pressed.

4 Press [▲/▼] to move to the option you want and press [⏎].

5 The selected option will be applied.

# 6.7 Source Detection

You can activate **Source Detection**.

## 6.7.1 Configuring Source Detection

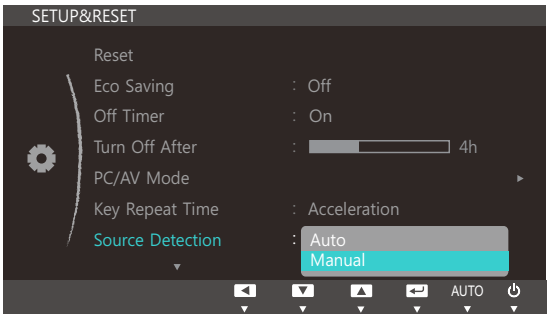
1 Press any button on the front of the product to display the Function Key Guide.

Next, press [**MENU**] to display the corresponding menu screen.

2 Press [▲/▼] to move to **SETUP&RESET** and press [⏎] on the product.

3 Press [▲/▼] to move to **Source Detection** and press [⏎] on the product.

The following screen will appear.




- **Auto**: The input source is automatically recognized.
- **Manual**: Manually select an input source.

4 Press [▲/▼] to move to the option you want and press [⏎].

5 The selected option will be applied.

# 6.8 Customized Key

You can customize **Customized Key** as follows.

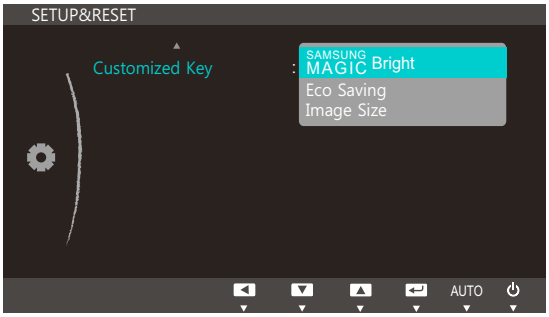
## 6.8.1 Configuring Customized Key

1. Press any button on the front of the product to display the Function Key Guide.

   Next, press [**MENU**] to display the corresponding menu screen.

2. Press [▲/▼] to move to **SETUP&RESET** and press [⮌/⮑] on the product.
3. Press [▲/▼] to move to **Customized Key** and press [⮌/⮑] on the product.

   The following screen will appear.




   - SAMSUNG MAGIC**Bright** - **Eco Saving** - **Image Size**

4. Press [▲/▼] to move to the option you want and press [⮌/⮑].
5. The selected option will be applied.

# 7.1 INFORMATION

View the current input source, frequency and resolution.

## 7.1.1 Displaying INFORMATION

1 Press any button on the front of the product to display the Function Key Guide.

Next, press [MENU] to display the corresponding menu screen.

2 Press [▲/▼] to move to INFORMATION.

The current input source, frequency and resolution will appear.

The displayed menu items may vary depending on the model.

## 7.2 Configuring Brightness and Contrast in the Initial Screen

Adjust the **Brightness**, **Contrast** using the [ ☼ ] buttons when the initial screen (that displays no menu screen) is displayed.

1 Press any button on the front of the product (when no menu screen is displayed) to display the Function Key Guide.

Next, press [ ☼ ]. The following screen will appear.

2 Press the [⮌/⮎] button to alternate between the **Brightness** and **Contrast** settings.

3 Adjust the **Brightness**, **Contrast** using the [▲/▼] buttons.

# 8.1 MagicTune

## 8.1.1 What is "MagicTune"?

"MagicTune" is a software program that helps with monitor adjustments by providing comprehensive descriptions of monitor functions and easy-to-understand guidelines.

You can adjust the product with the mouse and the keyboard without using the operating buttons of the product.

## 8.1.2 Installing the Software

1. Insert the installation CD into the CD-ROM drive.
2. Select the "MagicTune" setup program.

   If the pop-up screen for the software installation does not appear on the main screen, find and double-click the "MagicTune" setup file on the CD-ROM.
3. Select the installation language and click **Next**.
4. Complete the remaining software installation steps according to the instructions displayed on the screen.

- The software may not work properly if you do not restart the computer after the installation.
- The "MagicTune" icon may not appear depending on the computer system and the product specifications.
- If the shortcut icon does not appear, press the F5 key.

### Restrictions and Problems with the Installation ("MagicTune™")

The installation of "MagicTune™" may be affected by the Graphics Card, Motherboard and the Networking Environment.

### System Requirements

OS

- Windows XP, Windows Vista, Windows 7, Windows 8

### 8.1.3 Removing the Software

You can only remove "MagicTune™" through **Add or Remove Programs** in Windows.

To remove "MagicTune™", complete the following steps.

1. Click **Start** select **Settings**, and select **Control Panel** from the menu.
   For Windows XP, click **Start**, and select **Control Panel** from the menu.
2. Double-click the **Add or Remove Programs** icon in the Control Panel.
3. In the **Add/Remove** window, find and select "MagicTune™" so that it is highlighted.
4. Click **Change or Remove Programs** to remove the software.
5. Select **Yes** to start removing "MagicTune™".
6. Wait until a message box appears informing you that the software has been removed completely.

> For technical support, the FAQ (frequently asked questions) or information about the software upgrade for "MagicTune™", please visit our website (http://www.samsung.com/us/consumer/learningresources/monitor/magetune/pop_intro.html).

## 8.2 MultiScreen

"MultiScreen" enables users to use the monitor by partitioning multiple sections.

### 8.2.1 Installing the Software

1. Insert the installation CD into the CD-ROM drive.
2. Select the "MultiScreen" setup program.

   If the pop-up screen for the software installation does not appear on the main screen, find and double-click the "MultiScreen" setup file on the CD-ROM.

3. When the Installation Wizard appears, click **Next**.
4. Complete the remaining software installation steps according to the instructions displayed on the screen.

   - The software may not work properly if you do not restart the computer after the installation.
   - The "MultiScreen" icon may not appear depending on the computer system and the product specifications.
   - If the shortcut icon does not appear, press the F5 key.

#### Restrictions and Problems with the Installation ("MultiScreen")

The "MultiScreen" installation may be affected by the Graphics Card, Motherboard and the Networking Environment.

#### System Requirements

OS

- Windows™ 2000
- Windows XP Home Edition
- Windows XP Professional
- Windows Vista 32Bit
- Windows 7 32Bit
- Windows 8 32Bit

For "MultiScreen", the operating systems Windows 2000 or later is recommended.

Hardware

- At least 32MB of memory
- At least 60MB of free space on the hard disk drive

### 8.2.2 Removing the Software

Click **Start**, select **Settings**/**Control Panel**, and then double-click **Add or Remove Programs**.

Select "MultiScreen" from the program list and click the **Add/Delete** button.

# 9.1 Requirements Before Contacting Samsung Customer Service Center

## 9.1.1 Testing the Product

Before calling Samsung Customer Service Center, test your product as follows. If the problem persists, contact Samsung Customer Service Center.

Check if your product is operating normally by using the product test function.

If the screen is turned off and the power indicator blinks even though the product is properly connected to a PC, perform a self-diagnosis test.

1. Power off both the PC and product.
2. Disconnect the cables from the product.
3. Power on the product.
4. If the message **Check Signal Cable** appears, the product is working normally.

   If the screen remains blank, check the PC system, video controller and cable.

## 9.1.2 Checking the Resolution and Frequency

For a mode that exceeds the supported resolution (refer to "10.3 Standard Signal Mode Table"), the message **Not Optimum Mode** will appear for a short time.

## 9.1.3 Check the following.

### Installation issue (PC mode)

| Issues | Solutions |
|---|---|
| The screen keeps switching on and off. | Check the cable connection between the product and PC, and ensure the connectors are locked.<br>(Refer to "2.2 Connecting and Using a PC") |

## Screen issue

| Issues | Solutions |
|---|---|
| The power LED is off. The screen will not switch on. | Check that the power cable is connected properly.<br>(Refer to "2.2 Connecting and Using a PC") |
| The message **Check Signal Cable** appears. | Check that the cable is properly connected to the product.<br>(Refer to "2.2 Connecting and Using a PC") |
| | Check that the device connected to the product is powered on. |
| **Not Optimum Mode** is displayed. | This message appears when the signal from the graphics card exceeds the maximum resolution or frequency for the product. |
| | Change the maximum resolution and frequency to suit the product performance, referring to Standard Signal Mode Table (page 80). |
| The images on the screen look distorted. | Check the cable connection to the product.<br>(Refer to "2.2 Connecting and Using a PC") |
| The screen is not clear. The screen is blurry. | Adjust **Coarse** and **Fine**. |
| | Remove any accessories (video extension cable, etc.) and try again. |
| | Set the resolution and frequency to the recommended level. |
| The screen appears unstable and shaky. | Check that the resolution and frequency for the PC are within the range of resolution and frequency compatible with the product.<br>Next, if required, change the settings, referring to Standard Signal Mode Table (page 80) in this manual and the **INFORMATION** menu on the product. |
| There are shadows or ghost images left on the screen. | |
| The screen is too bright. The screen is too dark. | Adjust **Brightness** and **Contrast**. |
| Screen color is inconsistent. | Change the **COLOR** settings.<br>(Refer to " Configuring Tint") |
| The colors on the screen have a shadow and are distorted. | Change the **COLOR** settings.<br>(Refer to " Configuring Tint") |
| White does not really look white. | Change the **COLOR** settings.<br>(Refer to " Configuring Tint") |

| Issues | Solutions |
|---|---|
| There is no image on the screen and the power LED blinks every 0.5 to 1 second. | The product is operating in power-saving mode. |
| | Press any key on the keyboard or move the mouse to return to normal operating mode. |

### Source device issue

| Issues | Solutions |
|---|---|
| A beeping sound is heard when my PC is booting. | If a beeping sound is heard when your PC is booting, have your PC serviced. |

## 9.2 Q & A

| Question | Answer |
|---|---|
| How can I change the frequency? | Set the frequency on your graphics card.<br>• Windows XP: Go to **Control Panel** → **Appearance and Themes** → **Display** → **Settings** → **Advanced** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.<br>• Windows ME/2000: Go to **Control Panel** → **Display** → **Settings** → **Advanced** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.<br>• Windows Vista: Go to **Control Panel** → **Appearance and Personalization** → **Personalization** → **Display Settings** → **Advanced Settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.<br>• Windows 7: Go to **Control Panel** → **Appearance and Personalization** → **Display** → **Screen Resolution** → **Advanced settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**.<br>• Windows 8: Go to **Settings** → **Control Panel** → **Appearance and Personalization** → **Display** → **Screen Resolution** → **Advanced settings** → **Monitor**, and adjust **Refresh rate** under **Monitor settings**. |

| Question | Answer |
|---|---|
| How can I change the resolution? | • Windows XP: Go to **Control Panel** → **Appearance and Themes** → **Display** → **Settings**, and adjust the resolution.<br>• Windows ME/2000: Go to **Control Panel** → **Display** → **Settings**, and adjust the resolution.<br>• Windows Vista: Go to **Control Panel** → **Appearance and Personalization** → **Personalize** → **Display Settings**, and adjust the resolution.<br>• Windows 7: Go to **Control Panel** → **Appearance and Personalization** → **Display** → **Adjust Resolution**, and adjust the resolution.<br>• Windows 8: Go to **Settings** → **Control Panel** → **Appearance and Personalization** → **Display** → **Adjust Resolution**, and adjust the resolution. |
| How do I set power-saving mode? | • Windows XP: Set power-saving mode in **Control Panel** → **Appearance and Themes** → **Display** → **Screen Saver Settings** or BIOS SETUP on the PC.<br>• Windows ME/2000: Set power-saving mode in **Control Panel** → **Display** → **Screen Saver Settings** or BIOS SETUP on the PC.<br>• Windows Vista: Set power-saving mode in **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** or BIOS SETUP on the PC.<br>• Windows 7: Set power-saving mode in **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** or BIOS SETUP on the PC.<br>• Windows 8: Set power-saving mode in **Settings** → **Control Panel** → **Appearance and Personalization** → **Personalize** → **Screen Saver Settings** or BIOS SETUP on the PC. |

Refer to the user manual for your PC or graphics card for further instructions on adjustment.

## 10.1 General

| Model Name | | S19C301F | S20C301FL | S22C301F |
|---|---|---|---|---|
| Panel | Size | 18.5 Inches (47 cm) | 19.5 Inches (49 cm) | 21.5 Inches (54 cm) |
| | Display area | 409.8 mm (H) x 230.4 mm (V)<br>16.1 Inches (H) x 9.1 Inches (V) | 432 mm (H) x 239.76 mm (V)<br>17.01 Inches (H) x 9.44 Inches (V) | 476.64 mm (H) x 268.11 mm (V)<br>18.77 Inches (H) x 10.56 Inches (V) |
| | Pixel Pitch | 0.300 mm (H) x 0.300 mm (V)<br>0.012 Inches (H) x 0.012 Inches (V) | 0.27 mm (H) x 0.27 mm (V)<br>0.01 Inches (H) x 0.01 Inches (V) | 0.24825 mm (H) x 0.24825 mm (V)<br>0.00977 Inches (H) x 0.00977 Inches (V) |
| Synchronization | Horizontal Frequency | 30 ~ 81 kHz | | |
| | Vertical Frequency | 56 ~ 75 Hz | | |
| Display Color | | 16.7 M | | |
| Resolution | Optimum Resolution | 1366 x 768 @ 60 Hz | 1600 x 900 @ 60 Hz | 1920 x 1080 @ 60 Hz |
| | Maximum Resolution | 1366 x 768 @ 60 Hz | 1600 x 900 @ 60 Hz | 1920 x 1080 @ 60 Hz |
| Input Signal, Terminated | | RGB Analog, DVI (Digital Visual Interface) Compliant Digital RGB<br>0.7 Vp-p ± 5%<br>separate H/V sync, Composite, SOG<br>TTL level (V high ≥ 2.0V, V low ≤ 0.8V) | | |
| Maximum Pixel Clock | | 85 MHz (Analog, Digital) | 136 MHz (Analog, Digital) | 148 MHz (Analog, Digital) |
| Power Supply | | This product supports 100-240 V. Since the standard voltage may differ from country to country, please check the label on the back of the product. | | |
| Signal connectors | | D-sub connector<br>DVI-D connector | | |

# 10 Specifications

| Model Name | | S19C301F | S20C301FL | S22C301F |
|---|---|---|---|---|
| Dimensions (W x H x D) / Weight | Without Stand | 445 x 279 x 51 mm<br>17.5 x 11.0 x 2.0 Inches | 476.2 x 299.8 x 53 mm<br>18.7 x 11.8 x 2.1 Inches | 510 x 319 x 53 mm<br>20.1 x 12.6 x 2.1 Inches |
| | With Stand | 445 x 360 x 187 mm / 2.2 kg<br>17.5 x 14.2 x 7.4 Inches / 4.9 lbs | 476.2 x 379.4 x 187 mm / 2.35 kg<br>18.7 x 14.9 x 7.4 Inches / 5.2 lbs | 510 x 398 x 195 mm / 2.9 kg<br>20.1 x 15.7 x 7.7 Inches / 6.4 lbs |
| VESA Mounting Interface | | 75 mm x 75 mm<br>2.95 Inches x 2.95 Inches | | |
| Environmental considerations | Operating | Temperature : 50°F ~ 104°F (10°C ~ 40°C)<br>Humidity : 10 % – 80 %, non-condensing | | |
| | Storage | Temperature : -4°F ~ 113°F (-20°C ~ 45°C)<br>Humidity : 5 % – 95 %, non-condensing | | |

Plug-and-Play

This monitor can be installed and used with any Plug-and-Play compatible systems. Two-way data exchange between the monitor and PC system optimizes the monitor settings. Monitor installation takes place automatically. However, you can customize the installation settings if desired.

Panel Dots (Pixels)

Due to the nature of the manufacturing of this product, approximately 1 pixel per million (1ppm) may be brighter or darker on the LCD panel.
This does not affect product performance.

The above specifications are subject to change without notice to improve quality.

This device is a Class B digital apparatus.

(USA only)

Dispose unwanted electronics through an approved recycler.

To find the nearest recycling location, go to our website:

www.samsung.com/recyclingdirect or call, (877) 278 - 0799

## 10.2 PowerSaver

The power-saving function of this product reduces power consumption by switching off the screen and controlling the power LED status if the product is not used for a specified period of time.
The power is not turned off in power-saving mode. To switch the screen back on, press any key on the keyboard or move the mouse. Power-saving mode functions only when the product is connected to a PC that has a power-saving function.

| PowerSaver | Normal Operation Mode | Power saving mode | Power off (Power Button) |
|---|---|---|---|
| Power Indicator | On | Blinking | Off |
| Power Consumption (S19C301F) | 15 W | Typical 0.3 W<br>Max 0.45 W | Typical 0.3 W<br>Max 0.45 W |
| Power Consumption (S20C301FL) | 25 W | Typical 0.3 W<br>Max 0.45 W | Typical 0.3 W<br>Max 0.45 W |
| Power Consumption (S22C301F) | 25 W | Typical 0.3 W<br>Max 0.45 W | Typical 0.3 W<br>Max 0.45 W |

- The power consumption level can vary in different operating conditions or when settings are changed.
- To reduce the power consumption to 0 watts, turn off the power switch on the back of the product or disconnect the power cable. Be sure to disconnect the power cable when you will not be using the product for an extended period of time. To reduce the power consumption to 0 watts when the power switch is not available, disconnect the power cable.

## 10.3 Standard Signal Mode Table

- This product can be set to only one resolution for each screen size to obtain the optimum picture quality due to the nature of the panel. Therefore, a resolution other than the specified resolution may degrade the picture quality. To avoid this, it is recommended that you select the optimum resolution specified for the screen size of your product.
- Check the frequency when you exchange a CDT monitor (connected to a PC) for an LCD monitor. If the LCD monitor does not support 85Hz, change the vertical frequency to 60Hz using the CDT monitor before you exchange it with the LCD monitor.

If a signal that belongs to the following standard signal modes is transmitted from your PC, the screen will automatically be adjusted. If the signal transmitted from the PC does not belong to the standard signal modes, the screen may be blank even though the power LED turns on. In such a case, change the settings according to the following table by referring to the graphics card user manual.

**S19C301F**

| Resolution | Horizontal Frequency (kHz) | Vertical Frequency (Hz) | Pixel Clock (MHz) | Sync Polarity (H/V) |
|---|---|---|---|---|
| IBM, 720 x 400 | 31.469 | 70.087 | 28.322 | -/+ |
| VESA, 640 x 480 | 31.469 | 59.940 | 25.175 | -/- |
| MAC, 640 x 480 | 35.000 | 66.667 | 30.240 | -/- |
| VESA, 640 x 480 | 37.861 | 72.809 | 31.500 | -/- |
| VESA, 640 x 480 | 37.500 | 75.000 | 31.500 | -/- |
| VESA, 800 x 600 | 35.156 | 56.250 | 36.000 | +/+ |
| VESA, 800 x 600 | 37.879 | 60.317 | 40.000 | +/+ |
| VESA, 800 x 600 | 48.077 | 72.188 | 50.000 | +/+ |
| VESA, 800 x 600 | 46.875 | 75.000 | 49.500 | +/+ |
| MAC, 832 x 624 | 49.726 | 74.551 | 57.284 | -/- |
| VESA, 1024 x 768 | 48.363 | 60.004 | 65.000 | -/- |
| VESA, 1024 x 768 | 56.476 | 70.069 | 75.000 | -/- |
| VESA, 1024 x 768 | 60.023 | 75.029 | 78.750 | +/+ |
| VESA, 1280 x 720 | 45.000 | 60.000 | 74.250 | +/+ |
| VESA, 1366 x 768 | 47.712 | 59.790 | 85.500 | +/+ |

S20C301FL

| Resolution | Horizontal Frequency (kHz) | Vertical Frequency (Hz) | Pixel Clock (MHz) | Sync Polarity (H/V) |
|---|---|---|---|---|
| IBM, 720 x 400 | 31.469 | 70.087 | 28.322 | -/+ |
| VESA, 640 x 480 | 31.469 | 59.940 | 25.175 | -/- |
| MAC, 640 x 480 | 35.000 | 66.667 | 30.240 | -/- |
| VESA, 640 x 480 | 37.861 | 72.809 | 31.500 | -/- |
| VESA, 640 x 480 | 37.500 | 75.000 | 31.500 | -/- |
| VESA, 800 x 600 | 35.156 | 56.250 | 36.000 | +/+ |
| VESA, 800 x 600 | 37.879 | 60.317 | 40.000 | +/+ |
| VESA, 800 x 600 | 48.077 | 72.188 | 50.000 | +/+ |
| VESA, 800 x 600 | 46.875 | 75.000 | 49.500 | +/+ |
| MAC, 832 x 624 | 49.726 | 74.551 | 57.284 | -/- |
| VESA, 1024 x 768 | 48.363 | 60.004 | 65.000 | -/- |
| VESA, 1024 x 768 | 56.476 | 70.069 | 75.000 | -/- |
| VESA, 1024 x 768 | 60.023 | 75.029 | 78.750 | +/+ |
| VESA, 1152 x 864 | 67.500 | 75.000 | 108.000 | +/+ |
| MAC, 1152 x 870 | 68.681 | 75.062 | 100.000 | -/- |
| VESA, 1280 x 720 | 45.000 | 60.000 | 74.250 | +/+ |
| VESA, 1280 x 800 | 49.702 | 59.810 | 83.500 | -/+ |
| VESA, 1440 x 900 | 55.935 | 59.887 | 106.500 | -/+ |
| VESA, 1440 x 900 | 70.635 | 74.984 | 136.750 | -/+ |
| VESA, 1600 x 900RB | 60.000 | 60.000 | 108.000 | +/+ |

S22C301F

| Resolution | Horizontal Frequency (kHz) | Vertical Frequency (Hz) | Pixel Clock (MHz) | Sync Polarity (H/V) |
|---|---|---|---|---|
| IBM, 720 x 400 | 31.469 | 70.087 | 28.322 | -/+ |
| MAC, 640 x 480 | 35.000 | 66.667 | 30.240 | -/- |
| MAC, 832 x 624 | 49.726 | 74.551 | 57.284 | -/- |
| MAC, 1152 x 870 | 68.681 | 75.062 | 100.000 | -/- |
| VESA, 640 x 480 | 31.469 | 59.940 | 25.175 | -/- |
| VESA, 640 x 480 | 37.861 | 72.809 | 31.500 | -/- |
| VESA, 640 x 480 | 37.500 | 75.000 | 31.500 | -/- |
| VESA, 800 x 600 | 35.156 | 56.250 | 36.000 | +/+ |
| VESA, 800 x 600 | 37.879 | 60.317 | 40.000 | +/+ |
| VESA, 800 x 600 | 48.077 | 72.188 | 50.000 | +/+ |
| VESA, 800 x 600 | 46.875 | 75.000 | 49.500 | +/+ |
| VESA, 1024 x 768 | 48.363 | 60.004 | 65.000 | -/- |
| VESA, 1024 x 768 | 56.476 | 70.069 | 75.000 | -/- |
| VESA, 1024 x 768 | 60.023 | 75.029 | 78.750 | +/+ |
| VESA, 1152 x 864 | 67.500 | 75.000 | 108.000 | +/+ |
| VESA, 1280 x 720 | 45.000 | 60.000 | 74.250 | +/+ |
| VESA, 1280 x 800 | 49.702 | 59.810 | 83.500 | -/+ |
| VESA, 1280 x 1024 | 63.981 | 60.020 | 108.000 | +/+ |
| VESA, 1280 x 1024 | 79.976 | 75.025 | 135.000 | +/+ |
| VESA, 1440 x 900 | 55.935 | 59.887 | 106.500 | -/+ |
| VESA, 1600 x 900RB | 60.000 | 60.000 | 108.000 | +/+ |
| VESA, 1680 x 1050 | 65.290 | 59.954 | 146.250 | -/+ |
| VESA, 1920 x 1080 | 67.500 | 60.000 | 148.500 | +/+ |

- Horizontal Frequency

  The time required to scan a single line from the left to the right side of the screen is called a horizontal cycle. The reciprocal number of a horizontal cycle is called horizontal frequency. Horizontal frequency is measured in kHz.

- Vertical Frequency

  Repeating the same picture dozens of times per second allows you to view natural pictures. The repeat frequency is called "vertical frequency" or "refresh rate" and is indicated in Hz.

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# Responsibility for the Pay Service (Cost to Customers)

When the service is requested, in spite of in warranty, we may charge you for a visit from a service technician in the following cases.

## Not a product defect

Cleaning of the product, Adjustment, Explanation, Re-installation and etc.

- If a service technician gives instructions on how to use product or simply adjusts options without disassembling product.
- If a defect is caused by external environmental factors. (Internet, Antenna, Wired Signal, etc.)
- If a product is reinstalled or devices are connected additionally after installing the purchased product for the first time.
- If a product is reinstalled to move to a different spot or to move to a different house.
- If customer requests instructions on how to use because of another company's product.
- If customer requests instructions on how to use the network or another company's program.
- If customer requests software installation and setup for the product.
- If a service technician removes/cleans dusts or foreign materials inside of the product.
- If customer requests an installation additionally after purchasing a product through home-shopping or online.

## A Product damage caused by customer's fault

Product damage caused by customer's mishandling or wrong repair

If a product damage is caused by;

- external impact or drop.
- use of supplies or separately sold product unspecified by Samsung.
- repair from a person besides an engineer of outsourcing service company or partner of Samsung Electronics Co., Ltd.
- remodeling or repairing the product by customer.
- using it with incorrect voltage or non-authorised electrical connections.
- not following the "cautions" in User Manual.

## Others

- If product fails by natural disaster. (lightning, fire, earthquake, flood damage, etc)
- If consumable components are all used up. (Battery, Toner, Fluorescent lights, Head, Vibrator, Lamp, Filter, Ribbon, etc.)

If customer requests a service in case the product has no defect, service fee may be charged. So please read User Manual first.

# Correct Disposal

## Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in  countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

# Terminology

### OSD (On Screen Display)

On screen display (OSD) allows you to customize on-screen settings to optimize the picture quality as required. You can change the screen brightness, tint, size and many other settings using menus displayed on the screen.

### Gamma

The Gamma menu adjusts the grey scale that represents middle tones on the screen. Adjusting the brightness brightens the whole screen, but adjusting Gamma only brightens the medium brightness.

### Grey scale

Scale refers to levels of color intensity that show variations of color change from darker areas to brighter areas on the screen. Changes to the screen brightness are expressed with black and white variation, and grey scale refers to the medium area between black and white. Changing the grey scale through Gamma adjustment will change the medium brightness on the screen.

### Scanning rate

Scanning rate, or refresh rate, refers to the frequency of screen refreshes. Screen data is transmitted as it refreshes to display an image, although the refreshing is invisible to the naked eye. The number of screen refreshes is called scanning rate and is measured in Hz. A scanning rate of 60Hz means that the screen refreshes 60 times per second. The screen scanning rate depends on the performance of the graphics cards in your PC and monitor.

### Horizontal Frequency

Characters or images displayed on the monitor screen consist of numerous dots (pixels). Pixels are transmitted in horizontal lines, which are then arranged vertically to create an image. The horizontal frequency is measured in kHz and represents how many times horizontal lines per second are transmitted and displayed on the monitor screen. A horizontal frequency of 85 means that the horizontal lines that make up an image are transmitted 85000 times per second. The horizontal frequency is indicated in 85kHz.

### Vertical Frequency

One image is made of numerous horizontal lines. The vertical frequency is measured in Hz and represents how many images can be created per second by those horizontal lines. A vertical frequency of 60 means that an image is transmitted 60 times per second. The vertical frequency is also called "refresh rate" and affects screen flicker.

### Resolution

Resolution is the number of horizontal pixels and vertical pixels that form a screen. It represents the level of display detail.

A higher resolution displays a greater amount of information on the screen and is suitable for performing multiple tasks at the same time.

E.g. A resolution of 1366 x 768 consists of 1366 horizontal pixels (horizontal resolution) and 768 vertical lines (vertical resolution).

E.g. A resolution of 1920 x 1080 consists of 1920 horizontal pixels (horizontal resolution) and 1080 vertical lines (vertical resolution).

### Plug & Play

The Plug & Play feature allows the automatic exchange of information between a monitor and PC to produce an optimum display environment.

The monitor uses VESA DDC (international standard) to execute Plug & Play.

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